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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,228	12/31/2003	Jang-hyoun Youm	1572.1225	7133

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EXAMINER	
HIRUY, ELIAS	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,228	YOUM, JANG-HYOUN	
	Examiner	Art Unit	
	Elias B. Hiruy	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,7,10-14,17,20,23,25-27,32 and 35* is/are rejected.

7)☒ Claim(s) *2,3,5,6,8,9,15,16,18,19,21,22,24,28-31,33 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. However, a translated version of the foreign application is requested in order to grant a priority as required by 35 U.S.C 119 (b).

Information Disclosure Statement

2. The information disclosure statement filed on 12/31/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The documents submitted need to be translated into English in order for the examiner to consider the information disclosed. Where the examiner has not initialed on the attached IDS, the documents are not considered in this office action.

Drawings

3. Figure 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 1-35 objected to because of the following informalities: the applicant refers to motor structure that is comprised of a power supply, motor drive, and motor as one entity under the preamble motor power supply. It is well known in the art that a motor supply only includes apparatus or means that constitute an AC Power Supply Part and/or a DC power supply part and/or a means to smooth the output of one of the two devices. In this application, the corresponding apparatuses or means are considered to be the DC power supply and the storage device $C_{pn;}$ thus, the invention breadth exceeds the limit of the preamble. Hence, the reference to the motor power supply in this application is interpreted as a motor power supply control apparatus or means as best understood by the examiner.

Appropriate correction is required.

5. Claims 1, 11, and 15 are objected to because of the following informalities: Claim 1, 11, and 15 refer to a serial connection of a control switching element with a breaking resistor. It appears that what the applicant intended to refer too is a series connection as opposed to a serial connection. In this office action, the examiner will consider the connection claimed as a series connection based on the information acquired from the drawings.

In addition, the word breaking is used in claim 1 line 10 and several times through out the claims (e.g. 4-12, 14-15, 17-22, 28-29, and 31-32). It is noted by the examiner that what the applicant is referring too is the word "braking mode."

Any/All subsequent recitations of these terms are subjected to the above assumptions.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 1 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The reference to "the additional line" is used several times in a manner that makes the invention vague and indefinite. For instance, the usage of the statement on line 13 is not clear as to which additional line the applicant is referring. The following statement is the interpretation of the examiner as best understood in order to continue the prosecution of the application:

" A motor power supply including a DC power supply part having a pair of power supply terminals, and an inverter having a pair of connection terminals connected by a first additional line, respectively, to the pair of power supply terminals of the DC power ..."

a second additional line connecting ...

a braking resistor disposed in the second additional line...

a braking switch disposed to one of the connection terminals...connection terminals to the second additional line..."

Further, the reference to the "normal position" without defining what the normal position renders the claim indefinite. It is presumed in this office action that the normal position is the position where the braking switch is in a closed circuit format as best understood based on figures 4 and 5.

Regarding claim 26, in claim 13, the applicant further limits the speed detector introduced in claim 12; however, in claim 26, the applicant recites about a control part that comprises a speed detector. It is unclear if the applicant is introducing a second speed detector in claim 26 or if the applicant is trying to further limit the speed detector that was recited earlier in claim 13. In this office action, the control part that comprises a speed detector is presumed, as best understood, to be the integrated encoder with the control part.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 10, 11, 12, 14, 17, 25, 26, 27 and 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Murty et al U.S. Patent No 5,291,106.

Murty et al shows a control system that shows all the claimed elements in this application. Regarding claim 1, 11, 12, and 14, Murty et al invention has a motor power

supply that has a DC power supply (figure 1 label 20) having a pair of power supply terminals the (+) and (-) terminals as shown on figure 1, an inverter (figure 1 label 29) having a pair of connection terminals, (DC+) and circuit ground, connected to the power supply with a first additional line to receive power from the DC power supply and supplying AC power to the motor (figure 1 label 11). Further, Murty et al shows a second additional line that contains a braking resistor(figure 1 label 26) and a control switch (figure 1 label 24) connected in series to connect the two connections of the inverter. The breaking switch (figure 1 label 22) is disposed to one of the connection terminals to connect the one of the connection terminals to a corresponding power supply terminal (column 5 lines 27-33 and column 6 lines 11-16), or a breaking position connecting the one of the connection terminals to the second additional line (column 5 lines 33-39 and lines 55-64; column 6 lines 54-68).

In addition, Murty et al invention has means to detect the motor speed of the motor(column 4 lines 59-68) based on signals H1-H3, and a system controller controlling the breaking switch to switch to the breaking position. The system controller (figure 1 label 40), using the mod switch driver, controls the control switching element so that an on-off interval of the control switching element is controllable depending on the speed detected by the motor speed detector, when the motor is in a controlled breaking mode (i.e. dynamic braking mode) (column 5 lines 33-39 and lines 55-64).

Regarding claim 4 and 17, Murty et al teaches how the controller controls the breaking switch to switch to the normal position when the motor is in a driving mode (column 5 lines 28-39).

In regards to claim 7, 10, and 20, Murty et al teaches that the transistor gates could alternatively be replaced by electromagnetic relays (column 7 lines 57-61).

With respect to claim 25, Murty et al invention uses MOS transistor (figure 1 labels 22 and 24) or field effect transistor, which is switch able depending on a gate input signal. Further, the controller controls the gate input signal to the switching element so as to turn on or turn off the switching element to change an interval between a turning on and a turning off the switching element (figure 1, 24 and 22).

Regarding claim 27, Murty et al shows while the motor is in a driving mode, rotational energy stored by the motor regenerates in the DC supply unit through the inverter (column 6 lines 54-68 and column 7 lines 17-27).

Regarding claim 32, Murty et al teaches when a portion of the current flowing in the motor flows through a diode of the inverter the breaking resistor resulting in a shortening of the power connection terminals of the motor(column 5, lines 65-68 and column 6 lines 1-11).

Regarding claim 35, Murty et al shows a three phase motor (i.e. a multi-phase motor).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al U.S. Patent No 5,291,106 as applied to claim 12 above, and further in view of Jahkonen U.S. Patent No 6,452,357.

In regards to claim 13, Murty et al teaches about an apparatus that meets all the limitations of claim 12.

Regarding claim 13 and 26, Murty et al shows how the motor controller(40) detects and determines the motor speed based on signals H1-H3 (column 4 lines 59-63). However, Murty et al fails to disclose an encoder that is used to code an angle of a rotation position of the motor and calculate a rotational position and a speed of the motor based on an encoded signal to provide the control part the information gathered.

Nevertheless, Jahkonen discloses an encoder (figure 3 label Encoder or Revolver and column 2 lines 60-65) that is used to code an angle of a rotation position of the motor and calculate a rotational position and a speed of the motor based on an encoded signal to provide the controller part the information gathered.

Thus, it would have been obvious for one having ordinary skill in the art at the time the invention was made to incorporate the encoder of Jahkonen into Murty et al

invention either independently or integrated with the controller (40). The motivation being that the method would allow for a robust and fast response since the motor controller would be provided with a precise feedback regarding the motor condition.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al U.S. Patent No 5,291,106 as applied to claim 14 above, and further in view of Sekiguchi et al Pub. No US2002/0051371 A1.

In regards to claim 23, Murty et al teaches about an apparatus that meets all the limitations of claim 14.

However, Murty et al fails to disclose an inrush-current protection circuit to prevent an inrush-current from being generated on an initial supply of power to the DC supply unit.

Sekiguchi et al teaches about an inrush-current protection circuit (Abstract lines 1-4) to prevent an inrush-current from being generated on an initial supply of power to the DC supply unit.

Thus, it would have been obvious for one having ordinary skill in the art at the time the invention was made to incorporate the inrush-current protection circuit of Sekiguchi et al invention into Murty et al invention. The motivation being that the method inhibits an inrush current from flowing into a smoothing circuit when the power is turned on.

Allowable Subject Matter

10. Claims 2-3, 5-6, 8-9, 15-16, 18-19, 21-22, 24, 28-31, 33-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening claims.

Remarks

11. No claim is allowed.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior arts that were found to be closely related to the current application are listed on the PTO-892 form attached.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias B. Hiruy whose telephone number is 571-272-6105. The examiner can normally be reached on 7AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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